

The Gender and Race of Pixels: An Exploration of Intersectional Identity Representation and Construction within Minecraft and its Community*

Emma Anderson,
University of Pennsylvania
Philadelphia PA
USA
emmaa@upenn.edu

Justice Walker
University of Pennsylvania
Philadelphia PA
USA
justicew@upenn.edu

Yasmin B. Kafai
University of Pennsylvania
Philadelphia PA
USA
kafai@upenn.edu

Debora Lui
University of Pennsylvania
Philadelphia PA
USA
deblui@upenn.edu

ABSTRACT

Most of the previous research has focused on gendered or racial representations in either game playing or making contexts. In this paper, we adopt an intersectional perspective by examining gender and race identity representations and constructions within Minecraft, a sandbox game, popular with millions of youth. Our research focuses not only on game play and construction but also examines gender and racial representations within the larger metagaming community, in particular online YouTube video postings and a public gaming convention. In the discussion, we address gender, race, and intersectional identity representation across Minecraft's ecology in how these representations on and offline are influenced by and impact youth gamers along with ways to prevent Minecraft from becoming an exclusionary space.

CCS CONCEPTS

- Computer systems organization → Embedded systems; Redundancy; Robotics
- Networks → Network reliability

KEYWORDS

Minecraft, race, gender, intersectionality, youth gamers

ACM Reference format:

E. Anderson, J. Walker, Y. Kafai, & D. Lui 2017. SIG Proceedings Paper in word Format. In *Proceedings of ACM Foundations of Digital Gaming, Hyannis, MA USA, August 2017 (CAPE CODE'17)*, 10 pages.
DOI: 10.1145/123 4

1 INTRODUCTION

The representations and constructions of gender and race remains a problematic and perennial issue in video game play and design [22], [25], [26]. Critiques focus largely on how gendered and raced characters are represented in video games spaces, including how women are portrayed as sex objects (e.g.

[13] and [20]) as well as how racial minorities are depicted in criminalized ways (e.g., [6] and [27]). While these individual stereotyped representations are clearly problematic in and of themselves, they are even more troubling when considering how these representations might lead to the creation of digital environments that privilege specific social groups (i.e., white and male), while simultaneously marginalizing others (i.e., people of color and women) [4], [11]. The resulting power disparity was especially salient in the recent #Gamergate controversy in which female game designers and critics were harassed and threatened [10]. Many scholars now see the need to consider representations in light of how they might shape the perceptions, expectations, and activities of the communities that surround these games (e.g., [42]).

This call to action is especially important given the rising popularity of gaming communities among children and youth—which attract millions of young players. Many of these games (e.g., Whyville, Minecraft) ask young players to create avatars, or representations of themselves within these worlds. Because avatars often involve complex intersections of identity markers and signifiers (e.g., a Black male gamer, an Asian girl athlete), it is necessary to look beyond singular identification categories (i.e., gender or race). These intersectional approaches offer unique opportunities to uncover how identities gamers bring to digital spaces are influenced, oppressed or cultivated [8], [21], [36]. Such perspectives move beyond traditional approaches that might inadvertently essentialize identity categories, and provide insights into how one might support more holistic, inclusive interactions among members of gaming communities [38]. These issues have an impact in how games and surrounding activities often act as both racialized and gendered “pedagogical zones,” that not only teach particular skills or academic content, but may also model and enculturate players into particular systems of thinking around race or gender based on a game’s narrative structure or characterization [15].

In this paper, we examine gender and race and their intersections in a youth gaming and production community, called Minecraft, a sandbox game extremely popular with audiences of 15 and under [42]. Minecraft combines playing and making on one platform and is currently being promoted for educational applications. The composition and development of communities surrounding games such as Minecraft (or what Gee [16] has described as its “metagaming” environment) have additionally shaped the constructions of gender, racial and intersectional identities within the game—whether through avatar ‘skins’ created and chosen by players or through other on

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s).

FDG'17, August 14-17, 2017, Hyannis, MA, USA

© 2017 Copyright is held by the owner/author(s). Publication rights licensed to ACM. ACM 978-1-4503-5319-9/17/08...\$15.00

and off-line activities that support gameplay, such as YouTube tutorials or public events. For this reason, our study also focuses on this larger ecology of Minecraft gameplay, examining several different contexts in which these forms of identity construction occur. This includes the gameplay of youth in independently arranged Minecraft workshops, the online database of Minecraft-related tutorials and gameplay videos shared via YouTube, and the activities and attendance at a public convention for Minecraft fans. In looking at these contexts, we asked the following two research questions: (1) How are gender, race, and intersectional identities represented throughout the Minecraft metagaming ecology? (2) How might these representations shape the interactions and activities of players? In the discussion, we address youth perceptions of the intersection of race and gender in their avatar skin selections along with the lack of intersectional diversity seen within the larger metagaming community.

2 BACKGROUND

Our study of Minecraft draws from prior work on gender, race and intersectional identity perspectives on video games, as well as an understanding of the game Minecraft itself. In general, the work on gender and race within video games can be understood from two vantage points: first, how these identity categories are represented on-screen within the games themselves, and second, how these particular representations may influence the demographics, behaviors, and attitudes of the players themselves. In terms of on-screen representations, there have been numerous studies focused on how women have been positioned in games as objects, for instance, as prizes or so-called “damsels in distress” to be rescued by male players [13]. Furthermore, many games provide few female avatars to women players or, if so, present those in hypersexualized ways [3], [20]. Likewise, research has demonstrated a persistent lack of racial diversity within games, thus reinforcing a default assumption about the whiteness of players [12], [14]. Additionally, with games that do present diverse characters, oftentimes, these are represented in stereotyped ways, such as overtly muscled Black avatars [27], [28], [39] or Black women as victims of violence [27]. These limited representations of gendered and racial roles disregard the complexity of femininity, masculinity, class, and race.

Beyond what occurs on-screen, however, these representations can have repercussions in real-life, amongst players themselves. Notably, research has revealed how games do not promote inclusive spaces as a result of these stereotyped representations. This includes, for instance, how many popular video game characterizations or narratives were primarily targeted towards men and boys rather women or girls [22], [23]. Likewise, lack of racially diverse representation has been shown to signal a lack of belonging with non-dominant gamers [30], who might experience an “identity-associated threat” characterized by psychological feelings of detachment [45]. In addition to these exclusions, research has illustrated how video games are teaching or modeling tools for learning stereotypes, whether young men accepting problematic depictions of women [4], or players acclimating to narratives that overtly promote

racial stereotyping and intolerance [15]. For this reason, video games have been described as both racialized and gendered “pedagogical zones,” that can sometimes have harmful effects on players by enculturating them into negative systems of value and judgment [15], [26].

Intersectional research on identity is just gaining increased attention in the field, focusing on multiple intersecting conceptualizations of identity including sexuality, class, ethnicity, gender, and race [26]. However, most work in this area has focused on the experiences of players themselves, rather than strictly looking at on-screen representations. This has included, for instance, studies on Latina gamers and their experiences of gameplay as seen through the perspective of their family units [41], as well as work on Black women gamers on Xbox Live, who were found to experience a dual edge of discrimination on one hand for being both female and Black and on the other hand are invisible to the larger gaming community [18], [19]. Beyond the experiences of these individual groups, however, research has continued to push toward greater understanding of intersectionality at-large with respect to people’s digital lives, and focused on active ways of challenging and resisting the oppression that arises from these categorizations [29].

Despite efforts to examine intersectionality vis-a-vis adult game players’ experiences, there are only a few studies that look explicitly at intersectionality within youth gaming. An exception to this is work on avatar creation, which is an area that seemingly yields rich potential for understanding intersectional identities, since it involves players’ own complex conceptions of their identity. One such study examined a tween virtual world called Whyville [24], and found that there was an imbalance in avatar productions reflecting racial diversity—a finding also observed by players themselves. While players with racially diverse avatars did not experience explicit racial adversity, they did encounter “racist responses” from other players. More recent studies have looked at productions in a youth programming community called Scratch [37] and found a lack of culturally-diverse content in programs and among creators [39]. These few studies underscore the need for more research around the complex ways race and gender emerges in youth DIY and programming gaming contexts.

A prominent example is Minecraft, an online-based “sandbox” game with over 100 million registered players worldwide, developed by the Swedish company Mojang and now owned by Microsoft. Minecraft is now known to be the second most popular game of all-time [7]. This sandbox game allows players to create objects out of different resources found in the environment of the game (e.g., castles out of stone). Though not targeted toward any particular age group, Minecraft has become an extremely popular with youth; the largest group of its registered players are fifteen years old or younger [43]. In and of itself, the game seems to defy traditional representations of race, gender or other markers of identity, since it predominantly features play in first-person mode. Players look through their avatar’s eyes and can really only see a part of their arm. Furthermore, interactions are with animals and imaginary beings rather than other people. Additionally, the game’s pixelated look,

a seeming throwback to computing in the 1980s, can appear to make race and gender ambiguous in its over-simplification of traditional signifiers of race and gender [17]. This assumption is supported by Minecraft creator, Markus “Notch” Person, who has claimed that the world is genderless, while including explicit gender bending into the game through features such as a rooster laying eggs [44].

Beyond the actual design of the game, however, it is important to note how the players themselves stress the importance of identity markers within the Minecraft space. One prominent example can be seen through the construction of the default avatars “Steve” and “Alex.” Initially, the default avatar Steve had no name and was supposedly of ambiguous race and gender. It was only after a random comment from founder Person that people started to call the avatar Steve and treat him as a male. Additionally, online forums and comments have shown people’s interest in categorizing Steve, asking whether he is White, Mexican or Middle Eastern [2],[31]. Because of interest from the player community, the company had added another character named “Alex” in 2015, who is unambiguously marked as a white female, since she has distinctively lighter skin than Steve, long blond hair, green eyes, and a thinner figure.

Interest in avatar gender and race identity can also be seen through the creation of Minecraft modification or “mods” themselves. In order to address the lack of avatar choices on the site, players have themselves created entire databases of personalized skins that can be chosen and inputted into the game. These range from fictional characters (e.g., superheroes, cartoons) to famous people (e.g., athletes, historical figures) to everyday characters (e.g., ‘a girl with purple hair and a cute outfit’). Sometimes people even put in requests to well-known players to create personalized skins with particular features or characteristics. The popularity of this practice seems to illustrate players’ ongoing interest in promoting racial, gender, or intersectional identities into Minecraft.

Despite its millions of players and growing popularity, to date only a few studies have investigated issues of gender, race or identity formation in Minecraft [5], [35]. An ethnography of Minecraft play of a Black youth [33] found that through Skype conversations during gameplay stereotypes of race and gender roles were revealed, while another study [1] found limitations in how much underrepresented gamers could authentically reflect themselves in Minecraft during a summer camp program. This limitation was specifically evident when gamers expressed intent to change their avatar’s skin color, but then had significant challenges finding selections that accommodated this preference, confirming earlier findings from research in Whyville [24].

Given this dearth of research around the intersection of race and gender in Minecraft, this study contributes to our understanding of how youth game players and the larger community express the complexities of identities in terms of race and gender. In particular, we examine the various levels through which these representations and constructions emerge. First, we consider the design parameters of the game itself, looking at how players leverage these to express the intersection of race and gender, especially through selection of avatar skins during gameplay. Then, we study at metagaming contexts of Minecraft,

focusing first on YouTube as one of the most popular online forums for Minecraft players [46]. Since the game’s creation, YouTube has become one of the most dominant online public venues for Minecraft players, acting as a platform through which to share cultural knowledge, experiences, and perspectives. Players regularly produce and upload videos of their game play or how-to tutorials for the game; some of these videos have attracted millions of viewers, and create channels for public discussion through their commenting sections.

In addition to this online context, we also conducted observations at an off-line site for Minecraft players: public conventions. These in-person events have emerged as equally popular venues that offer opportunities for game fans to meet face-to-face. One study describes the emergence of a “New Digital Games” era where popular online games are increasingly engaged in large-scale public spaces like festivals and conventions, paralleling a trend in related DIY communities of maker faires [32]. Some of the conventions like Minecon [17] are organized by Mojang while others like Minefaire (the convention we visited for this study) are organized by outside companies. These events capitalize on the increasing popularity of the Minecraft community by bringing fans and YouTube stars together, thus bridging the online and offline worlds of play and production.

3 METHODS

This study captures the wider ecological landscape of Minecraft that includes not only the game and players themselves, but also the wider metagaming contexts (both on and offline) in which Minecraft players interact. We examine a ‘slice’ of this ecology by focusing on three different settings: individual youth play of the game as captured through library and makerspace-based workshops, Minecraft-themed YouTube videos produced by and for players, and a local public event featuring Minecraft and its “YouTube stars.” Looking across these multiple sources, we triangulated our findings about gender, race, and intersectional identity construction within the Minecraft landscape [9].

3.1 Minecraft Workshops

We set up four afternoon workshops, each lasting about four hours, two of which were located in a local makerspace and two others that were situated in a public library. We chose to create our own workshops in order to observe first hand youth game play while mimicking a space similar to how minecraft.edu might be experienced by youth. These free workshops were advertised through locally posted flyers and subscriber email lists. To start the workshops, we primed participants with an activity designed to get them to reflect and share about their identity and interests. Furthermore, we provided each participant with a document to chart out the designs they would create in Minecraft during the workshop. After these 40 minute-long guided activities, players were free to play together or by themselves. Two researchers, a Black Hispanic male (Author Two), a White female (Author One), both in their mid-thirties, directed and observed workshop activities. Workshop observations were analyzed for instances when race and gender

became evident during avatar skin representation, construction, and play. During the workshop, we also collected computer screenshots of all participant avatar skin selections, as well as their Minecraft constructions. In terms of play researchers observed what youth created, how they interacted with the world of Minecraft and with their fellow workshop attendees.

3.2 Player Interviews

In total, 20 participants, ages 6 to 16 registered for one of the four workshops. Of these, 7 were female and 13 of the participants were males. We asked participants to racially self-identify: 8 Black, 6 White, 4 Asian, and 2 Hispanic. At the conclusion of each workshop we conducted one-on-one interviews with each participant asking about their (1) demographics, (2) previous experiences in playing Minecraft and computer programming, (3) avatar selections in the workshop, (4) design decisions in constructions, and (5) perceptions about self-expression in the environment. Interviews of all participants were transcribed and coded by two researchers (Authors One and Two). A codebook was developed using an iterative and inductive approach [9] by identifying each instance when the topic related to identity appeared. Four categories of descriptive codes emerged: (1) the activity type youth engaged with on Minecraft; (2) their experience level; (3) motivations around youth decisions; and (4) how youth expressed themselves in the gaming environment.

We also developed subcodes based on emergent themes. For experience level, we categorized participants as beginner, intermediate, and expert. These were based on the frequency of the participant's play with Minecraft. Motivations for picking avatar skins included subcodes aesthetic and aspirational: aesthetic motivation was defined as one based primarily on physical appearance (i.e., beauty, cuteness), while an aspirational motivation was defined as one based non-physical characteristics (i.e., bravery, adventurous). We also thematically coded for youth perceptions on how well they were able to express themselves in the game and found five different emergent themes: indifference, interest-driven, representational, signaling, and unattainable. To investigate how gender, race and experience level may have influenced avatar choice, motivation, and perceptions of self-expression, we tallied up these codes across each of the broad identity categories and their intersection. Because some respondents provided more than one reason for their avatar skin selection, (i.e., when a single player reports that they selected an avatar based on interests and self-expression), as a result, reporting on these factors is reported out of number of instances mentioned rather than number of interviewees.

3.3 Online Video Forum

To investigate the larger Minecraft metagaming communities, we looked at the online video forum YouTube.com. Players have been posting relevant how-to and gameplay videos onto YouTube since the first release in 2010 of the beta version of the Minecraft, and are the most popular form of online engagement amongst Minecraft players beyond the game itself.

Like in other gaming communities, these videos are often comprised of tutorials or demonstrations on how to play the game, and build 'mods' (modifications) that can be imported into the gaming environment. To address the question of how these metagaming contexts support or shape gender and racial representation, we looked at videos found through the search terms "Minecraft AND skin creation."

Videos were selected from lists generated through these YouTube searches. One researcher (Author One) watched the first 27 videos out of a total result of more than 190,000 videos. Researchers have found that users often look at only the first 9 hits to a search query [34]. By viewing the first 27 videos we were capturing more than the average user and gaining a wider understanding of the search term. The researcher collected information about each video into a spreadsheet including: the video's URL, description of content, number of views, and type of skin that was featured in the video. The skin was categorized in terms of gender (male, female, or other) and the color (brown, white, or 'fantasy' non-human colors, such as blue or grey). A screenshot was taken of every skin shown in the video. The final analysis focused on 25 videos where gender or race could be coded. In the 25 videos there were 57 different skins shown. Along with investigating the skins displayed in the videos the researcher also attempted to determine the race and gender of the video creators. In 21 of the videos the creators could be identified in terms of gender and 14 could be identified racially.

3.3 Public Convention

We also attended a public convention event aimed toward Minecraft fans called *Minefaire: A Minecraft Fan Experience*, which was held over two days in a large northeastern city in the United States. This event was organized by All Access Labs, an event production company that produces over 15 public events over the year including Minefaire (in multiple cities), a Lego fan event named *BrickFest*, and K-12 STEAM education focused event called *Young Innovators*. At the Minefaire event, there were about 12,140 attendees, a number that broke the Guinness World Record for the largest convention organized around a single video game.

Observations took place over a four-hour period and were focused on the content of exhibits and presentations, as well as racial and gender distribution of participants and presenters, who were primarily comprised of Minecraft "YouTube Stars" (players, often young adults, who have gained celebrity within the Minecraft community through their video postings to the site). Two researchers (Authors One and Two) visited the convention mainstage, gaming exhibits, learning workshops, competition stage and YouTube celebrity 'Meet & Greet' tables. Researchers positioned themselves at these different locations and remained there taking notes of the activities and racial distributions of attendees in approximately twenty minutes intervals. We should note that the race and gender of convention attendees and the YouTube stars were determined entirely by appearance and researchers' judgment. This perception-based determination was limiting, particularly in cases when gender or race was ambiguous or unclear. Afterward, researchers composed reflective notes about their observations and

interpretations.

4 FINDINGS

Our study of the intersection of race and gender within Minecraft play and production took place in online and offline contexts—workshops, video archives, and public convention and reflected the various ways in which communities of players participate, represent, and interact with the complexities of gender and race. Below we report on the broad thematic findings across the ecology of the Minecraft gaming world in relation to gender, race, and their intersectionality. We first present our findings on youth game play in general from the workshops. Then, we report on how youth experience level, gender, and race influence youth avatar skin selection, as well as how these categories are reflected within the larger metagaming communities as seen on YouTube and at *Minefaire*.

4.1 Youth Game Play

In the workshop, participants engaged either with a partner or on their own within Minecraft's creative mode and spent most of the workshop building an adventure map in single player mode. Before playing, participants were asked to select their avatar, either Alex or Steve. Then, they were encouraged to pick a new skin for this avatar from the website minecraftskins.net, a site which features user-generated skins for the game (see **Figure 1** for several of the skin selection options). Participants also had the option of modifying avatar characteristics from eight color options: blue, green, yellow, orange, red, pink, white and black. Of the 401 skins under “people” on [Minecraftskin.net](http://minecraftskin.net) about half are female and the majority are white. All workshop participants chose an avatar skin other than Alex or Steve.



Figure 1 A selection of the skins available on minecraftskins.net

We observed that workshop participants pursued the first four or five pages on minecraftskins.net before choosing a skin for their avatar. While players can select different skins, the default perspective on the screen is the first-person mode, where one looks out of the avatar's eyes. This means that during gameplay the player can at most see their right arm (see Figure 2) and therefore are not privy to how they appear to others. After selecting their avatar's skin, players began to explore, build, and create within Minecraft. For some of our participants this was their first time changing their avatar's appearance while other attendees had previously selected a custom skin for their avatar.

Minecraft involves two modes of play: *creative* where the

player has access to unlimited resources and does not have to fear any monsters and *survival* where the player has to gather all of his or her own resources and avoid or defend against monsters that come out at night. In our workshop, youth engaged with Minecraft only in the creative mode.



Figure 2 Minecraft play in action

We noticed that the level or sophistication of play in Minecraft depended largely on the participants' prior experience with navigating through the environment. Beginner players tended to explore the environment by surveying a range of landscapes by air or by tunneling through the game's virtual terrain. In one of the workshops, a pair of participants spent most of their time flying across terrains and exploring the environment while another novice player spent the time creating herds of animals. More experienced players tended to construct buildings in Minecraft to produce novel creations like portals through which they could teleport or pyramid mazes with which other players could engage. All of the workshop participants, no matter their gender or race, explored landscapes and built objects during play.

4.2 Youth Avatar Skin Selection

In this section, we report on how youth gamer experience level, gender, race, and their intersectionality influences their avatar skin selection choices as explained in their interviews.

4.2.1 Experience level influence on youth avatar skin selection. The largest experience category was expert, representing 11 of 20 workshop participants. The gender distribution of expert players was represented almost equally with six males and five females. The expert category also included the two largest racial categories represented in this study including self-identified six Black and five White participants. We found that more experienced players were primarily aesthetically-driven in their avatar skin selections and believe they are able to express their personal interests through Minecraft as one participant explains:

Interviewer: Okay. Tell me about the avatars you've chosen before today's workshop.

Participant: I've chosen, one of them is Bandit. She has ... I just liked her because that was like the only good looking girl there. Then I have another one. Her name is [unclear]. I liked the way her hair looked. I liked the way she looked.

The category of players with intermediate gaming experience was the smallest with only four players (20%), all males and included: one Asian, two Blacks, and one White male. We found

that intermediate players were primarily driven by personal interest in their avatar skin selections. Beginner players represented 25% (n=5) of the all workshop participants and included two males and three females, with two Asians, one Black, and two Hispanics. We found that beginner players were mostly indifferent about their avatar selections for example when asked "Does it matter to you what your avatar looks like?" one participant responded, "Not really..Because It's still an avatar. It's still a person, you're just using it to play the game" Here the youth is mostly concerned with being able to play.

4.2.2. Gender influence on youth avatar skin selection. When assessing gender categories individually, we found that boys and girls tended to engage avatar skin selections differently. In contrast to females, males tended to make avatar selections that were primarily situated in their interests or in order to signal something in the game environment as one participant explains:

Interviewer: When you changed your skin at the beginning of the workshop, what did you choose?

Participant: Batman.

Interviewer: Why?

Participant: Because I like Batman.

Here, a male participant indicates his avatar selection is based on his interest in Batman, the superhero.

By contrast, girls tended to make avatar selections equally across a variety of influence categories including: aesthetics, interests and indifference. All three of these categories were all equally important to more than half of the female players. In contrast to what we report, for instance, about expert player avatar selection decisions, we find that, boys overall tended to make avatar selection decisions based primarily on their interests and, to a lesser extent, intent to signal in the game environment. By contrast, girls tended to be driven equally across a variety of influence categories.

4.2.3 Race influence on youth avatar skin selection. Black participants represented the largest racial category in the workshops and most frequently reported making avatar selections based on interests and representation as one participant explains:

Interviewer: ... what did you change your avatar to be?

Participant: The Flash.

Interviewer: Why did you choose this?

Participant: Because that's my nickname, they used to call me that when, every time I would ...I leave, they don't know, but I leave, and they just called me The Flash.

Interviewer: Okay, because it's like you're gone -

Participant: Yeah.

Interviewer: Nobody notices that you're gone. Okay.

In other instances, this participant also describes his desire to select avatars that reflect his particular interest in DC comic

book characters including Deadpool and Green Goblin.

White and Hispanic participants predominantly made avatar selections based on interests and aesthetics. Asian participants emerged a strikingly different in that the majority reported being indifferent about their avatar selections. Ultimately, these results show that across all racial categories the most reported avatar decisions is based on interests. Nevertheless, these trends emerge characteristically different than those observed when assessing participant avatar selections in terms of the aforementioned experience level or gender categories.

4.2.4 Intersectionality of Gender and Race influence on youth avatar skin selection. Intersectional perspectives revealed how participants differed in making decisions about the avatars they use during play. One of the most salient findings observed was that among all racial and gender categories Black females are more aesthetically driven than any other racial-gender category. Every Black female participant in our workshops reported being motivated to choose an avatar skin based on aesthetics and the importance of representation in terms of self-expression. This is not true for females in general or for any of the other racial categories. Black male participants in our workshop reported making avatar selections in order to signal more frequently than all other racial-gender groups. Black males also reported making avatar skin selection based on interest; however, this was true across the board for all males regardless of their racial category.

For White female participants, aesthetics and interest were equally important in their decision-making process in regards to avatar skins. While White males cared about choosing an avatar that reflects their interests, the majority were indifferent about what their avatar looked like as one participant explains:

Interviewer: Does it matter to you what you look like?

Participant: Uh-ah (no)

Interviewer: Do you think that having an avatar is important, or just being able to play the game?

Participant: Just being able play the game.

As he expresses, although it is nice to pick an avatar skin that allows one to share their own interests, he has a stronger desire to just be able to play the game. As stated earlier, the two Hispanic males were motivated by interest in their avatar selection as was the one Asian male. The two female Asian participants showed an indifference to their avatar skin selection. Despite the fact that we have a small sample size, it is important to note that we did find differences in racial-gender decision making in terms of avatar skin selection. While not generalizable to the wider audience of Minecraft, these findings do underscore distinctions that exist across youth and how they choose to represent themselves within Minecraft amongst these intersectional categories.

4.3 Representation in the Metagaming Community

In this section, we describe how gender, race, and their intersectionality is represented through the Minecraft ecology,

both in terms of representation on-screen and off-screen amongst players.

4.3.1 Gender representation in the metagaming community. In both the YouTube videos and at *Minefaire* convention there was not an equal representation of gender. Of the 25 YouTube videos we analyzed, there was a significantly higher representation of male skins and narrators than female skins and narrators. Of the 57 skins featured, there were nine female skins (15.8%), 45 male skins (70.0%), and three that were neither male nor female (5.3%). A closer look at the female skins revealed that the majority had long hair and wore shorts. The male skins tended to have short hair and wore long pants. Figure 3 shows examples of the different skins, including females, males, and ‘fantasy’ skins (i.e., skins that do not represent real-life human beings, such as blue people or a horse). Along with investigating the skins in the videos we also attempted to identify the gender makeup of the YouTube contributors. Of the 21 YouTube creators that could be identified, 15 were male (71.4%) and six were female (10.5%); the rest of video creators could not be identified.



Figure 3 Avatar skins created on YouTube videos

Videos showcased two major categories of skin creation. The first type were music videos showing the real-time creation of a Minecraft skin while a pop song played. The second type were instructional how-to videos, of which there were three kinds: voice-over narration, written instructions on-screen with music in the background; and highlights on particular skills, for example, how to create ombre hair. Interestingly the majority of the female skin creation videos follow the music video style.

Along with exploring the YouTube community we also attended a public Minecraft convention and found a similar gender representation disparities. In terms of attendees, these were predominantly family groups with boys and girls who appeared to be mostly 12 years old or younger. While there were not an equal attendance of boys and girls, more than a third of the attendees were female. Notably, the actual presenters within the conference did not reflect this gender distribution. Of the 27 VIP YouTubers featured within the convention, 21 were male and 6 were female.

4.3.2 Racial representation in the metagaming community. Despite the fact that there is a demonstrated diversity of Minecraft players, the metagaming community presents itself as almost completely white. Out of the 25 YouTube videos analyzed, only two (or 8%) featured skins of color (23 or 92% featured white skins). Notably, one of these featured 32 NFL skins that the videographer made including six brown skins which appear to represent specific NFL players. Figure 4 shows several of these Black player NFL skins. Of the 14 YouTube creators whose race could be identified, only one was Middle Eastern and one was Asian while 12 White individuals.



Figure 4 Black NFL player avatar skins

At the *Minefaire* convention, there was a similar lack of racial diversity within the public presenters. Of the 27 VIP YouTubers, 25 were White and only two Asian stars, with no Black or Hispanic YouTube stars. The YouTube stars were all adults with the youngest being a senior in high school and the oldest probably in his late thirties early forties. Based on our visual scan of the audience, we observed attendees from numerous backgrounds and ethnicities (i.e., Black, Hispanic, Asian, Southeast Asian) with Whites being by far the largest group.

In light of the racial homogeneity of these YouTube Stars, it is interesting to note that sometimes their online persona differed from their offline identity, specifically in terms of racial signifiers. This fact came to light during one of the Question & Answer sessions with YouTube Stars during Minefaire. One attendee asked one of the white male stars why his avatar has dreadlocks if he himself does not. The YouTuber responded saying that his selection was based on a character he employs in another game. He added that he did not realize his selection would garner so much attention and went on to state, “It’s weird I know and I accept the weird.” This reflects a discord between his YouTube star online (non-white) and his in-person (white) visual identity.

4.3.3 Intersectional representation in the metagaming community. Of the 25 YouTube videos analyzed and 54 human (non-fantasy) skins shown, the largest number of skins featured were white males (36 of 54 or 66.7%). Strikingly, there were no females of color featured, and the majority of the male skins of color featured were of specific sports heroes (rather than everyday people). One of the videos begins by modifying an already created avatar skin by changing the darker browner skin tone of Steve (who, as mentioned earlier, is racially ambiguous) to a lighter peachier color (Figure 5 shows the avatar skin arms being transformed to a lighter skin tone). In the 25 videos analyzed, this was the only instance of changing the skin tone of an avatar. In another video, where a young Middle Eastern boy is describing how to create a custom skin through a mobile device, he demonstrates how to get a blank skin to modify. In doing so he reveals that the default skin option for mobile is a light peach color or as otherwise interpreted a White skin. See Figure 5 for an image of the default skin color.



Figure 5 Creating a lighter skin ton for a female avatar skin and default mobile skin color

As has been already mentioned, most of the YouTube stars at *Minefaire* were both White and male (20 of 27). The two non-White stars were an Asian female, and an Asian male, and there were five White female stars. Again, this did not reflect the wider audience of the convention, which was seemingly racially diverse, and over one-third female. With regard to the treatment of youth attendees of different intersectional identities, we did notice a difference in terms of how different people were included or not into the festivities. While there was an active attempt to include both boys and girls in on-stage events, we did not note any youths of color being asked on stage.

One instance that made this absence particularly clear was during a question-and-answer session with the YouTube stars. Youth were allowed to ask questions of the stars including “How did you pick your screen name” to “What will you be for Halloween?” During one Q&A, we noted that there was a young Black girl waiting to ask her question. She kept her hand raised throughout the session and was sitting in front of the stage. Despite this, she was not selected to ask a question. However, as the event was concluding, the moderator noticed her and made a deliberate attempt to include her into the event and allowed her to ask her question. While a single incident might not speak to all corners of the wider Minecraft ecology. We cannot say for sure why this participant was initially ignored, however, we can say that she was, at first, excluded from participation until an active attempt was made to include her. This underscores the need and importance to consider how particular representations of race, gender and intersectional identities might inadvertently exclude engagement, and may additionally lay the groundwork from which to challenge and push for inclusion.

DISCUSSION

Overall, our findings indicate that the universe of Minecraft does reflect identity markers for gender and race, despite a seemingly neutral design. This is reflected through numerous activities, from players’ individual avatar skin selections, which are to some extent influenced by their racial and gender identities, to representations of identity showcased on YouTube videos and public fan events which both reflect a lack of racial and gender diversity. Below we delve into how these finding broaden our understanding of online and offline identity representation, construction, and intersectionality within the larger ecology of Minecraft.

5.1 Representational Limitations within Minecraft

From one perspective, Minecraft acts as a blank canvas on which gamers are free to expand upon their own identities and aspirations. Whether through building Egyptian pyramids or *My Little Pony* pixel art, players have used the game as an avenue to express their personal interests. This is something that was clearly demonstrated by our discussion of youth players’ motivations for choosing their skins; by far, the most commonly cited reason was related to personal interest. In this respect, one particular affordance of Minecraft is that it allows the introduction of player-generated modifications, or “mods.”

Thus, unlike other gaming experiences, where people are limited in how they represent themselves because of what designers supply (e.g., in the virtual world Whyville) [24], here, players are seemingly able to represent themselves in an endless number of personalized ways.

Despite this observation, our study uncovered a limited number of representations available to players. Replicating what is seen in other gaming environments, white characters (as demonstrated through the YouTube videos) still seem to dominate the landscape of Minecraft. While there were some female skins present, these tended to replicate conventional notions of attractiveness rather than demonstrating alternate visions of femininity. Additionally, the lack of non-White avatar skin was glaring, especially in light of the fact that the few Black males represented were athletes. Following the idea that videogames can act as pedagogical zones [15], [26], players of Minecraft may similarly come to accept this erasure of gender and race differences due to the perpetuation of white characters on the site. From this perspective, it is important to question why—even when given free reign to create whatever one may want—we still find a replication of existing gender, racial, and intersectional stereotypes in the universe of the game. While Minecraft is a seemingly ‘neutral’ space, players will always bring in their existing backgrounds, social biases, and cultural conceptions into gameplay. In order to understand the choices players make then, it is essential to move beyond the specific design of Minecraft in and of itself, and instead focus on affordances and constraints presented by its larger context—namely, the ‘modding’ community, as well as the metagaming spaces for fans of the game. Only by consciously examining these worlds can we truly hope to prevent the construction of Minecraft as an exclusionary space.

5.2 Intersectionality within Minecraft

Our findings reveal that intersectional perspectives provide unique insights about how young gamers make avatar selections and participate in larger meta-game activities. This research, therefore, spans beyond existing literature that uses intersectional perspectives to understand, for example, adult gamer experiences [19],[41]. Here, we show that single category analyses emerges starkly different narratives when ascertaining how gamers, for instance, make avatar selections. Among our most salient findings was the instance when we found that single category analysis of gender suggested that boys were interest-driven while girls were also motivated by aesthetics when making avatar selections. Such an outcome becomes problematic when it further reinscribes false, but dominant stereotypes about male and female game play. In fact, we found that this was not a pattern representative of all girls and boys when adopting an intersectional approach. Specifically, we report that Black female youth were primarily driven by aesthetics, which was not the primary driver for avatar selection for any other racial-female category. Similarly, we found that Black males in our workshop appeared to be more often motivated by signaling when selecting an avatar than any other racial-gender category. These findings demonstrate how intersectionality unveils more nuanced player decisions, which

could not otherwise be revealed using single category analyses. In other words, an intersectional approach provides insights into otherwise hidden information. Importantly, even though we use race/gender categories, we do not intend to assert that artificial social constructions such as race and gender impart actual (i.e., biological) differences, but instead that such constructions influences how individuals may choose to operate within the world of Minecraft. Therefore, in order to understand what players do (to engage with this year's conference theme), we suggest that one must understand the complex articulation of social constructions that influence how people exist and operate in society, including virtual contexts.

5.3 Limitations of Researching Demographics in Minecraft

Because Minecraft does not require players to identify themselves, players engage with the platform in virtual anonymity. Therefore, it is a particular challenge to identify exactly who plays and how they play. Furthermore, demographics such as age, gender and race are not publicly or explicitly available for review. The most available way to identify such demographics is by assessing player avatar selections, but this approach is unreliable because some players make avatar selections that are not representative of their actual race or gender, for instance. This was evidenced with the YouTube celebrity who was questioned about the disparity between what his avatar looked like and how he actually looked. As a result, it is difficult for researchers to get a glimpse into who the actual participants are of Minecraft's vast community. Therefore, because Minecraft does not maintain and publicly share user demographic information, we attempted to triangulate our findings by examining Minecraft from different perspectives including: our workshops, YouTube videos and a local Minefaire, attended by an unprecedented number of attendees. As a result, we were able to demonstrate how race and gender surface in game play, how race and gender are represented in online video metagaming environments, as well as who is participating and leading activities at Minefaire. One space we did not explore in this study but would be worth further investigation is how gender, race and their intersectionality are present within multiplayer Minecraft experiences.

ACKNOWLEDGMENTS

The research was funded with a grant by the National Science Foundation (NSF#1027736) to third author. The views expressed are those of the authors and do not necessarily represent the views of the National Science Foundation or University of Pennsylvania.

REFERENCES

- [1] Morgan G. Ames and Jenna Burrell. 2017. Connected Learning and the Equity Agenda: A Microsociology of Minecraft Play. In *Proceedings of the 20th ACM Conference on Computer-Supported Cooperative Work and Social Computing* (CSCW 2017). ACM, New York, NY, 446-457. DOI: <https://dx.doi.org/10.1145/2998181.2998318>
- [2] Anonymous. 2012. ASK ENDERBRO AND STEVE. Tumblr. Retrieved from: <http://askenderbro.tumblr.com/post/18806581988/what-race-is-steve-im-not-trying-to-be-offensive>
- [3] Berrin Beasley and Tracy Collins Standley. 2002. Shirts vs. skins: Clothing as an indicator of gender role stereotyping in video games. *Mass Communication & Society* 5, 3 (2002), 279-293. DOI: http://dx.doi.org/10.1207/S15327825MCS0503_3
- [4] Alaina Brenick, Alexandra Henning, Melanie Killen, Alexander O'Connor, and Michael Collins. 2007. Social evaluations of stereotypical images in video games: Unfair, legitimate, or "Just Entertainment"? *Youth & Society* 38, 4 (2007), 395-419. DOI: <https://dx.doi.org/10.1177/0044118X06295988>
- [5] Iris R. Bull. 2014. *Foreclosing possibility in virtual worlds: An exploration of language, space, and bodies in the simulation of gender and minecraft*. Masters Dissertation. University of Oregon, Eugene, OR. Retrieved from: <https://proxy.library.upenn.edu/login?url=http://search.proquest.com/docview/1614474059/accounthid=14707>
- [6] Melinda C. R. Burgess, Karen E. Dill, S. Paul Stermer, Stephen R. Burgess, and Brian P. Brown. 2011. Playing with prejudice: The prevalence and consequences of racial stereotypes in video games. *Media Psychology* 14, 3 (2011), 289-311. DOI: <http://dx.doi.org/10.1080/15213269.2011.596467>
- [7] Noelene Callaghan. 2016. Investigating the role of Minecraft in educational learning environments. *Educational Media International* 53, 4 (2016), 244-260. DOI: <http://dx.doi.org/10.1080/09523987.2016.1254877>
- [8] Kimberle Crenshaw. 1989. Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. *U. Chi. Legal F.* (1989), 139-168.
- [9] John W. Creswell. 2012. Qualitative inquiry and research design: Choosing among five approaches. Los Angeles: Sage.
- [10] Kimberly Cross. 2016. Press F to revolt. In *Diversifying Barbie and Mortal Kombat: Intersectional perspectives and inclusive designs in gaming*, Y.B. Kafai, G.T. Richard, and B.M. Tynes (Eds.). 2016. Carnegie Mellon ETC Press, Pittsburgh, 23-34.
- [11] Troy G. Deskins. 2013. Stereotypes in video games and how they perpetuate prejudice. *McNair Scholars Research Journal* 6, 1 (2013), 19-36.
- [12] David R. Dietrich. 2013. Avatars of whiteness: Racial expression in video game characters. *Sociological Inquiry* 83, 1 (2013), 82-105. DOI: <http://dx.doi.org/10.1111/soin12001>
- [13] Tracy L. Dietz 1998. An examination of violence and gender role portrayals in video games: implications for gender socialization and aggressive behavior. *Sex Roles*, 38, 516 (1998), 425-441. DOI: <http://dx.doi.org/10.1023/A:1018709905920>
- [14] Betsy DiSalvo and Amy Bruckman. 2010. Race and gender in play practices: young African American males. In *Proceedings of the Fifth International Conference on the Foundations of Digital Games (FDG 2010)*, ACM, New York, NY, 56-63. ACM. DOI: <https://dx.doi.org/10.1145/1822348.1822356>
- [15] Anna Everett and S. Craig Watkins 2008. The Power of Play: The Portrayal and Performance of Race in Video Games. In *The Ecology of Games*. Katie Salen (Ed.). 2008. MIT Press, Cambridge, 141-166. DOI: <https://dx.doi.org/10.1162/dmal.9780262693646.141>
- [16] James P. Gee. 2003. What videogames have to teach us about learning and literacy. *Computers in Entertainment (CIE)* ACM 1, 1 (2003), 20-20. DOI: <https://dx.doi.org/10.1145/950566.950595>
- [17] Daniel Goldberg and Linus Larsson. 2015. *Minecraft: The Unlikely Tale of Markus "Notch" Persson and the Game that Changed Everything*. Seven Stories Press.
- [18] Kishonna L. Gray. 2016. 'They're too Urban': Black Gamers Streaming on Twitch. In *Digital Bodies*, Jessie Daniels and Karen Gregory (Eds.). 2016. Policy Press, Park Hill.
- [19] Kishonna L. Gray. 2012. Intersecting oppressions and online communities: examining the experiences of women of color in xbox live. *Information, Communication & Society* 15, 3 (March 2012), 411-428.
- [20] James D. Ivory. 2006. Still a man's game: Gender representation in online reviews of video games. *Mass Communication & Society* 9, 1 (2006): 103-114. DOI:

http://dx.doi.org/10.1207/s15327825mcs0901_6http://dx.doi.org/10.1207/s15327825mcs0901_6

[21] Vincent Jeffries and H. Edward Ransford. 1980. *Social stratification: A multiple hierarchy approach*. Boston, MA, Allyn & Bacon.

[22] Henry Jenkins, and Justine Cassell. 2008. From Quake Grrls to Desperate Housewives: A decade of gender and computer games. In *Beyond Barbie and Mortal Kombat: New perspectives on gender and gaming*. Y.B. Kafai, C. Heeter, J. Denner, J.Y. Sun (Eds.). 2008. MIT Press, Cambridge, 5-20.

[23] Yasmin B. Kafai. 2008. Gender play in a tween gaming club. In *Beyond Barbie and Mortal Kombat: New perspectives on gender and gaming*. Y.B. Kafai, C. Heeter, J. Denner, J.Y. Sun (Eds.). 2008. MIT Press, Cambridge, 111-124.

[24] Yasmin B. Kafai, Melissa S. Cook, and Deborah A. Fields. 2010. "Blacks Deserve Bodies Too!" Design and Discussion About Diversity and Race in a Tween Virtual World. *Games and Culture* 5, 1 (2010), 43-63. DOI: <http://www.chilrenspartnership.org/publications/144>

[25] Yasmin B. Kafai, Carrie Heeter, Jill Denner and Jennifer Y. Sun. 2009. Gamer Girls Rising: Beyond Barbie and Mortal Kombat: New Perspectives on Gender and Gaming. *The Women's Review of Books* 26, (2009), 5-7.

[26] Yasmin B. Kafai, Gabriela T. Richard and Brendesha M. Tynes, (Eds.). 2016. *Diversifying Barbie and Mortal Kombat: Intersectional Perspectives and Inclusive Designs in Gaming*. Carnegie Mellon ETC Press, Pittsburgh.

[27] David J. Leonard. 2006. Not a Hater, Just Keepin' It Real The Importance of Race-and Gender-Based Game Studies. *Games and Culture* 1,1 (2006), 83-88.

[28] Lisa Nakamura. 1995. Race in/for cyberspace: Identity tourism and racial passing on the Internet. *Works and Days*, 25, 26, 13, (1995), 181-193.

[29] Safiya U. Noble, & Brendesha M. Tynes. (Eds.). 2016. *The Intersectional Internet: Race, Sex, Class and Culture Online*. Peter Lang, New York.

[30] Bong-Won Park and Kun Chang Lee. 2011. An empirical analysis of online gamers' perceptions of game items: Modified theory of consumption values approach. *Cyberpsychology, Behavior, and Social Networking* 14, 7-8, (2011), 453-459. DOI: <http://dx.doi.org/doi:10.1089/cyber.2010.0253>.

[31] Patrobon. 2011. Steve's Race. Minecraft Forum. Retrieved from <http://www.minecraftforum.net/forums/minecraft-discussion/discussion/152500-steves-race>

[32] Celia Pearce, Tracy Fullerton, Janine Fron, and Jacquelyn F. Morie. 2007. Sustainable play: Toward a new games movement for the digital age. *Games and Culture* 2, 3, (2007), 261-278.

[33] Pellicone, Anthony, and June Ahn. "Building Worlds A Connective Ethnography of Play in Minecraft." *Games and Culture* (2015): 1555412015622345.

[34] Adrienne Hall Phillips, Ruijiao Yang, and Soussan Djamasbi,. (2013). Do ads matter? An exploration of web search behavior, visual hierarchy, and search engine results pages. *Systems Sciences (HICSS)*. DOI: 10.1109/HICSS.2013.181

[35] Amanda Potts 2015. LOVE YOU GUYS (NO HOMO)' How gamers and fans play with sexuality, gender, and Minecraft on YouTube." *Critical Discourse Studies* 12, 2, (2015), 163-186. DOI: <http://dx.doi.org/10.1080/17405904.2014.974635>

[36] H. Edward Ransford and Jon Miller 1983. Race, sex and feminist outlooks. *American Sociological Review*, 48, 1, 46-59, (1983).

[37] Mitchel Resnick, John Maloney, Andrés Monroy-Hernández, Natalie Rusk, Evelyn Eastmond, Karen Brennan, Amon Millner, Eric Rosenbaum, Jay Silver, Brian Silverman and Yasmin Kafai. 2009. Scratch: programming for all. *Communications of the ACM* 52, 11, (2009), 60-67. DOI: <http://dx.doi.org/10.1145/1592761.1592779>

[38] Gabriella T. Richard. 2016. At the Intersections of Play Intersecting and Diverging Experiences across Gender, Identity, Race, and Sexuality in Game Culture In *Diversifying Barbie and Mortal Kombat: Intersectional perspectives and inclusive designs in gaming*. Y.B. Kafai, G.T. Richard, and B.M. Tynes (Eds.). 2016. Carnegie Mellon ETC Press, Pittsburgh, 71-91.

[39] Gabriela T. Richard and Yasmin B. Kafai. 2016. Blind Spots in Youth DIY Programming: Examining Diversity in Creators, Content, and Comments within the Scratch Online Community. In *Proceedings of the 2016 ACM CHI Conference on Human Factors in Computing Systems*, 1473-1485. DOI: <http://dx.doi.org/10.1145/2858036.2858590>

[40] Siqi Shen and Alexandru Iosup. 2011. The xfire online meta-gaming network: Observation and high-level analysis." In *Haptic Audio Visual Environments and Games (HAVE)*, 2011 *IEEE International Workshop on* (2011), 103-114. DOI: <http://dx.doi.org/10.1109/HAVE.2011.6132542>

[41] Sinem Siyahhan and Elisabeth Gee. 2016. Understanding Gaming and Gender within the everyday lives of Mexican-American Family Homes. In *Diversifying Barbie and Mortal Kombat: Intersectional perspectives and inclusive designs in gaming*. Y.B. Kafai, G.T. Richard, and B.M. Tynes (Eds.). 2016. Carnegie Mellon ETC Press, Pittsburgh, 92-104.

[42] Constance Steinkeuhler. 2016. Parenting and video games. *Journal of Adolescent & Adult Literacy* 59, 4 (2016): 357-361. DOI: <http://dx.doi.org/10.1002/jaal.455>

[43] Ondi Timoner 2014. Minecraft the game that captured a generation through the eyes of serial entrepreneur Jay Adleson. *The Huffington Post*. Retrieved from: http://www.huffingtonpost.com/ondi-timoner/the-minecraft-generation_b_5900518.html%20

[44] Kelly Tran. 2013. *Designing gender: modding and community in Minecraft*. Ph.D. Dissertation. University of Florida, Gainesville, FL.

[45] Brendesha M. Tynes, Adriana J. Umana-Taylor, Chad A. Rose, Johnny Lin, and Carolyn J. Anderson. 2012. Online racial discrimination and the protective function of ethnic identity and self-esteem for African American adolescents. *Developmental Psychology*, 48, 2, (2012), 343-355.

[46] Nick Wingfield. 2015. Minecraft Stars on YouTube Share Secrets to Their Celebrity. *The New York Times*. Retrieved from: https://www.nytimes.com/2015/05/21/technology/personaltech/minecraft-stars-on-youtube-share-secrets-to-their-celebrity.html?_r=0